

### REMARKS

Claims 1-13, 15, 23, 24, and 26-29 are pending in the application upon entry of the amendments and new claims. Claims 4, 6, and 28, have been amended to better describe the subject matter thereof. Since the amendments do not require further searching and/or remove issues in the event of an appeal, entry is respectfully requested. Favorable reconsideration is respectfully requested in view the amendments, new claims, and remarks.

#### The Amendments

Claims 1, 6, and 9, have been amended to disclaim certain amine-borane compounds. Specifically, tertiary amine amine-borane compounds are disclaimed. New independent claim 26 is analogous to claim 1 except that pH and temperatures are more specifically described instead of more specifically describing the amine-borane compounds.

#### Claim Wording Objections/Rejections

Claims 4, 6, and 28 have been objected to or rejected regarding the wording in regards to the acetylenic brightener. Claims 4, 6, and 28 have been amended as suggested by the Examiner by appropriately adding the word "the".

#### The First Rejection Under 35 U.S.C. §103(a)

Claims 1-8, 23, and 26-29 stand rejected under 35 U.S.C. §103(a) over JP 10-245693 (hereinafter "JP '693") and Passal (U.S. Patent 3,697,391).

JP '693 relates to forming a nickel alloy by electroplating. JP '693 requires the brightener N-heterocyclic quaternary ammonium salt to function by inhibiting plating on insulation materials.

Passal relates to a process for electroplating Ni, Co, or Ni-Co alloys, wherein all metals are plated in ionic form. Passal uses a primary brightener (including

acetylenics), a secondary brightener, and an organic hydroxy-sulfonate adduct to improve tolerance to metallic impurities.

The Examiner contends that it would have been obvious to modify the method of JP '693 by replacing the N-heterocyclic quaternary ammonium salt brighteners with an acetylenic brightener of Passal. The Examiner contends that motivation exists in the teaching that Passal's brighteners provide a brilliant, well-leveled, quite ductile deposit at low current densities. Applicants respectfully disagree because one skilled in the art would not have combined the cited art as alleged by the Examiner.

#### JP'693 Fails to Suggest Brightener Function Required by the Claims

The N-heterocyclic quaternary ammonium salt brighteners of JP '693 are employed to suppress metal deposition on insulator material such as glass or ceramic. There is NO teaching or suggestion in JP '693 indicating that its N-heterocyclic quaternary ammonium salt brighteners would be effective for improving the appearance of Ni-Co-B alloys. There is NO teaching or suggestion in JP '693 indicating that its N-heterocyclic quaternary ammonium salt brighteners cause the uniform placement of boron, in an electroless fashion, within the matrix of a Ni-Co alloy. In fact, the N-heterocyclic quaternary ammonium salt brighteners of JP '693 prevent all metal deposition on insulator materials. Thus, the methods of JP '693 are inherently different from the methods of the claims. Nevertheless, the following detailed comments explaining why one skilled in the art would not have combined JP'693 and Passal are provided.

#### JP'693 Requires that a Brightener Function as a Surfactant Plate Inhibitor

Paragraph [0012] of JP '693 explains the function of its brightener. Specifically, the brightener works as an effective surfactant to suppress the deposition of metal. This is because the N-heterocyclic quaternary ammonium salt is much too large a molecule to function as a true brightener. Since neither JP '693 nor Passal teach or

suggest causing the uniform placement of boron within the matrix of a Ni-Co alloy, one skilled in the art would not have employed an acetylenic brightener in JP'693.

Moreover, since neither JP '693 nor Passal teach or suggest that an acetylenic brightener works as an effective surfactant to suppress the deposition of metal, one skilled in the art would not have replaced the N-heterocyclic quaternary ammonium salt brightener with an acetylenic brightener.

The objective of JP '693 is to use an N-heterocyclic quaternary ammonium salt brightener to suppress metal deposition on insulator material. Therefore, any replacement of the N-heterocyclic quaternary ammonium salt brightener MUST function to suppress metal deposition as fully explained in JP'693. One skilled in the art would NOT ignore or CONTRAVENE the straightforward teaching of JP'693 with an additive that work against the desired objective. For at least these reasons, one skilled in the art would not have combined JP '693 and Passal. The fundamental teachings of JP'693 prohibit the inclusion of the brighteners listed by Passal.

#### Passal Fails to Teach or Suggest Brightener Equivalency

The Examiner further contends that Passal teaches that acetylenic brighteners and pyridinium salt brighteners are functionally equivalent. While Passal lists many specific and generic descriptions of brighteners, Passal does NOT teach that all brighteners are functionally equivalent. And one skilled in the art would understand this simple fact: all brighteners are NOT functionally equivalent. It is noted that NOWHERE in Passal are acetylenic brighteners and pyridinium salt brighteners described as functionally equivalent. Clearly, acetylenic brighteners and pyridinium salt brighteners are structurally different and non-equivalent.

In fact, the technically accurate statement at the end of paragraph [0010] of JP '693 governs the equivalence of brighteners: "the condition of (metal) deposition differs remarkably depending on the type of brighteners used". Of the four generic groups and ten specific compounds of primary brighteners, four generic groups and five specific compounds of secondary brighteners, and twelve generic groups and seven specific

compounds of auxiliary secondary brighteners described by Passal, one skilled in the art would conclude that metal deposition differs remarkably depending on which of the infinite examples of brighteners listed by Passal is used.

Importantly, Passal fails to teach or suggest that any of its brighteners function as an effective surfactant to suppress the deposition of metal on an insulator substrate. Consequently, one skilled in the art would NOT have replaced the N-heterocyclic quaternary ammonium salt brightener of JP'693 with any of the brighteners of Passal since the essential function of plating inhibition is clearly absent.

#### Passal Fails to Suggest the Function of the Claimed Brighteners

The brighteners of Passal are employed to improve the appearance of electrodeposited Ni, Co, or Ni-Co alloys. There is NO teaching or suggestion in Passal indicating that its acetylenic brighteners would be effective for improving the appearance of Ni-Co-B alloys. Making the Ni-Co-B alloys as required by the claims involves the uniform placement of boron, in an electroless fashion, within the matrix of a Ni-Co alloy. There is NO teaching or suggestion in Passal indicating that its acetylenic brighteners improve the appearance of electrodeposited Ni-Co-B alloys, and there would have been no reason to expect such an outcome. Therefore, one skilled in the art would NOT have used any of the brighteners of Passal in the method of JP'693.

#### Word Usage in the Metal Plating Art

In the metal plating art, the words "brightener" and "additive" are often used interchangeably. In other words, the word "brightener" in the metal plating art has two meanings: 1) generically any additive and 2) a true brightener. True brighteners change the specularity of a deposit, making them more mirror like.

The generic usage is evident in Passal where twenty generic chemical groups and twenty two specific compounds of brighteners are provided. It is also evident in JP'693, which generically uses word "brightener", but JP'693 is really describing a surfactant that functions as a plat inhibitor. For example, JP'693 "brighteners"

cetylpyridinium bromide and benzylpyridinium bromide are standard surfactants used in shampoo. Surfactants lower the surface tension and solubilize materials, but do not brighten by refining grain structure. That is, surfactants are not true brighteners.

In summary, this discussion further supports the lack of functional equivalency between and amongst the brighteners of Passal, acetylenic brighteners, and the pyridinium salt brighteners of JP'693.

#### The Second Rejection Under 35 U.S.C. §103(a)

Claims 9-12, 15, and 24 stand rejected under 35 U.S.C. §103(a) over JP '693 in combination with Passal. The arguments presented in the rejection above, apply to this rejection as well.

#### The Third Rejection Under 35 U.S.C. §103(a)

Claim 13 stands rejected under 35 U.S.C. §103(a) over JP '693 in combination with Passal in view of SU 1,544,847 (hereinafter "SU '847"). The arguments presented in the rejection above involving the independent claims, apply to this rejection as well. SU '847 does not cure the deficiencies of the combined teachings of JP '693 and Passal, nor does SU '847 provide the missing motivation to combine JP '693 and Passal in the manner proposed by the Examiner.

#### Petition for Extension of Time

A request for a three month extension of time is hereby made (small entity status has been established). Payment is being made through the EFS electronic filing system.

Should the Examiner believe that a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

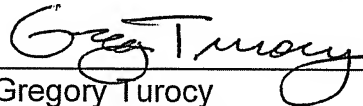
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In the event any fees are due in connection with the filing of this document, the Commissioner is authorized to charge those fees to our Deposit Account No. 50-1063.

Respectfully submitted,

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